

**WHAT IS CLAIMED IS:**

1. A method for transmitting uplink data by a user equipment (UE) in a code division multiple access (CDMA) communication system including a  
5 Node B, the UE is located in a region of the Node B, a neighbor Node B being adjacent to the Node B and having a soft handover region where the neighbor Node B overlaps with the Node B, and a radio network controller (RNC) connected to the Node B and the neighbor Node B, the method comprising the steps of:  
10 determining whether the UE is located in one of a non-soft handover region of the Node B, and in the soft handover region;  
transmitting the uplink data to the Node B for a predetermined first transmission time interval, if it is determined that the UE is located in the non-soft handover region; and  
15 transmitting the uplink data to the Node B and the neighbor Node B for a predetermined second transmission time interval, if it is determined that the UE is located in the soft handover region.
2. The method of claim 1, wherein the predetermined second  
20 transmission time interval is longer than the first transmission time interval.
3. The method of claim 1, further comprising the step of retransmitting the uplink data to the Node B upon receiving negative acknowledgement (NACK) information for the uplink data from the Node B,  
25 when the UE is located in the non-soft handover region.
4. The method of claim 3, wherein the step of retransmitting the uplink data comprises one of the steps of retransmitting the uplink data as was initially transmitted, and retransmitting a part of the initially transmitted uplink  
30 data.

5. The method of claim 1, further comprising the step of retransmitting the uplink data to the Node B and the neighbor Node B upon receiving NACK information for the uplink data from the Node B and the  
5 neighbor Node B, when the UE is located in the soft handover region.

6. The method of claim 5, wherein the step of retransmitting the uplink data comprises one of the steps of retransmitting the uplink data as was initially transmitted, and retransmitting a self-decodable part of the initially  
10 transmitted uplink data.

7. The method of claim 1, wherein the step of determining whether the UE is located in one of the non-soft handover region and the soft handover region comprises the step of determining whether information indicating that the  
15 UE enters the soft handover region is received from the RNC.

8. A method for transmitting acknowledgement (ACK) information and negative acknowledgement (NACK) information for uplink data transmitted from a user equipment (UE) by a Node B and a neighbor Node B in a code  
20 division multiple access (CDMA) communication system including the Node B, the UE being located in a region of the Node B, the neighbor Node B being adjacent to the Node B and having a soft handover region where the neighbor Node B overlaps with the Node B, and a radio network controller (RNC) connected to the Node B and the neighbor Node B, the method comprising the  
25 steps of:

determining whether the UE is located in one of a non-soft handover region of the Node B, and in the soft handover region;

determining ACK/NACK information for the uplink data and transmitting the determined ACK/NACK information to the UE, if it is  
30 determined that the UE is located in the non-soft handover region;

determining the ACK/NACK information for the uplink data and transmitting the determined ACK/NACK information to the RNC, if it is determined that the UE is located in the soft handover region;

after transmitting the ACK/NACK information, receiving final  
5 ACK/NACK information for the uplink data from the RNC; and  
transmitting the final ACK/NACK information to the UE.

9. The method of claim 8, wherein the step of determining whether the UE is located in one of the non-soft handover and the soft handover region  
10 comprises the step of determining whether information indicating that the UE enters the soft handover region is received from the RNC.

10. The method of claim 9, wherein the information indicating that the UE enters the soft handover region is received through a control frame of a  
15 frame protocol.

11. A method for transmitting final acknowledgement (ACK) information and final negative acknowledgement (NACK) information for uplink data transmitted from a user equipment (UE) by a radio network controller  
20 (RNC) in a code division multiple access (CDMA) communication system including a Node B, the UE being located in a region of the Node B, a neighbor Node B being adjacent to the Node B and having a soft handover region where the neighbor Node B overlaps with the Node B, and the RNC being connected to the Node B and the neighbor Node B, the method comprising the steps of:

25 upon detecting that the UE is located in the soft handover region, informing the Node B and the neighbor Node B that the UE is located in the soft handover region;

after informing that the UE is located in the soft handover region, receiving ACK/NACK information for the uplink data from the Node B and the  
30 neighbor Node B;

determining the final ACK/NACK information for the uplink data depending on the ACK/NACK information received from the Node B and the neighbor Node B; and

transmitting the determined final ACK/NACK information to the Node B  
5 and the neighbor Node B.

12. The method of claim 11, wherein the step of determining the final ACK/NACK information for the uplink data comprises the step of determining the final ACK information for the uplink data when the ACK  
10 information is received from at least one of the Node B and the neighbor Node B.

13. The method of claim 11, wherein the step of determining the final ACK/NACK information for the uplink data comprises the step of determining the final NACK information for the uplink data when no ACK  
15 information is received from both the Node B and the neighbor Node B.

14. The method of claim 11, wherein the step of informing that the UE is located in the soft handover region comprises the step of transmitting information indicating that the UE is located in the soft handover region, through  
20 a control frame of a frame protocol.

15. A system for transmitting uplink data by a user equipment (UE) in a code division multiple access (CDMA) communication system, , and, comprising:

25 a node B;

a neighbor Node B being adjacent to the Node B and having a soft handover region where the neighbor Node B overlaps with the Node B;

a radio network controller (RNC) connected to the Node B and the neighbor Node B; and

30 a UE for determining whether the UE is located in one of a non-soft

handover region of the Node B, and in the soft handover region, transmitting the uplink data to the Node B for a predetermined first transmission time interval, if it is determined that the UE is located in the non-soft handover region, and transmitting the uplink data to the Node B and the neighbor Node B for a  
 5 predetermined second transmission time interval, if it is determined that the UE exists in the soft handover region;

wherein the Node B and the neighbor Node B (a) determine acknowledgement (ACK) information and negative acknowledgment (NACK) information for the uplink data, (b) transmit the determined ACK/NACK  
 10 information to the UE when the UE is located in the non-soft handover region, (c) transmit the determined ACK/NACK information the RNC, if the UE is located in the soft handover region, (d) after transmitting the determined ACK/NACK information, receive final ACK/NACK information for the uplink data from the RNC, and (e) transmit the received final ACK/NACK information  
 15 to the UE; and

wherein the RNC (f) informs the UE, the Node B, and the neighbor Node B that the UE is located in the soft handover region, upon detecting that the UE is located in the soft handover region, (g) receives the ACK/NACK information for the uplink data from the Node B and the neighbor Node B, (h) determines the  
 20 final ACK/NACK information for the uplink data depending on the ACK/NACK information received from the Node B and the neighbor Node B, and (i) transmits the determined final ACK/NACK information to the Node B and the neighbor Node B.

25        16.     The system of claim 15, wherein the predetermined second transmission time interval is longer than the first transmission time interval.

      17.     The system of claim 15, wherein the UE retransmits the uplink data to the Node B upon receiving the NACK information for the uplink data  
 30 from the Node B, when the UE is located in the non-soft handover region.

18. The system of claim 17, wherein the UE retransmits one of the uplink data as was initially transmitted, and a part of the initially transmitted uplink data.

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19. The system of claim 15, wherein the UE retransmits the uplink data to the Node B and the neighbor Node B upon receiving the final NACK information for the uplink data from the Node B and the neighbor Node B, when the UE is located in the soft handover region.

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20. The system of claim 19, wherein the UE retransmits one of the uplink data as was initially transmitted, and a self-decodable part of the initially transmitted uplink data.

15 21. The system of claim 15, wherein the RNC informs that the UE is located in the soft handover region, through a control frame of a frame protocol.

22. The system of claim 15, wherein the RNC determines the final ACK information for the uplink data when the ACK information is received from  
20 at least one of the Node B and the neighbor Node B, and determines the final NACK information for the uplink data when the RNC fails to receive the ACK information from both the Node B and the neighbor Node B.